

WHAT IS CLAIMED IS:

1. A bicycle shift control device comprising:
  - a base member;
  - an operating member structured to be mounted around a handlebar so as to rotate in first and second directions around the handlebar;
  - a transmission control member coupled to the operating member and rotatably mounted relative to the base member for pulling and releasing a transmission control element;
  - a first position setting member;
  - a second position setting member structured to rotate with the operating member and to move axially, wherein the second position setting member moves between an engagement position in which the second position setting member engages the first position setting member and a disengagement position in which the second position setting member is disengaged from the first position setting member;
  - a first coupling member that moves in response to rotation of the operating member;
  - a second coupling member coupled to the second position setting member for engaging the first coupling member so that rotation of the operating member causes rotation of the second position setting member; and
  - wherein the first coupling member and the second coupling member are structured so that rotation of the operating member rotates the transmission control member for a selected rotational distance without moving the second position setting member toward the disengagement position.
2. The device according to claim 1 wherein the first coupling member and the second coupling member are structured so that rotation of the operating member rotates the transmission control member for a selected rotational distance without moving the second position setting member.
3. The device according to claim 1 wherein the first coupling member and the second coupling member are structured so that rotation of the operating member rotates the transmission control member for a selected rotational distance without rotating the second position setting member.

4. The device according to claim 1 wherein the first coupling member and the second coupling member are structured so that rotation of the operating member rotates the transmission control member for a selected rotational distance without axially moving the second position setting member.

5. The device according to claim 1 wherein the first coupling member and the second coupling member are spaced apart from each other so that rotation of the operating member rotates the transmission control member for a selected rotational distance without the first coupling member engaging the second coupling member.

6. The device according to claim 5 wherein the first coupling member engages the second coupling member by contacting the second coupling member.

7. The device according to claim 1 wherein the first coupling member rotates integrally with the operating member.

8. The device according to claim 1 wherein the second coupling member rotates integrally with the second position setting member.

9. The device according to claim 1 wherein the first coupling member rotates integrally with the operating member, and wherein the second coupling member rotates integrally with the second position setting member.

10. The device according to claim 9 wherein the first coupling member and the second coupling member are spaced apart from each other so that rotation of the operating member rotates the transmission control member for a selected rotational distance without the first coupling member engaging the second coupling member.

11. The device according to claim 10 wherein the first coupling member engages the second coupling member by contacting the second coupling member.

12. The device according to claim 11 wherein the first coupling member is one piece with the operating member, and wherein the second coupling member is one piece with the second position setting member.

13. The device according to claim 10 wherein the first coupling member comprises a first ratchet tooth that moves integrally with the operating member, and wherein the second coupling member comprises a second ratchet tooth that moves integrally with the second position setting member.

14. The device according to claim 13 wherein the first ratchet tooth has a first ratchet tooth surface, wherein the second ratchet tooth has a first ratchet tooth surface facing the first ratchet tooth surface of the first ratchet tooth, wherein the first ratchet tooth surface of the first ratchet tooth is spaced apart from the first ratchet tooth surface of the second ratchet tooth, and wherein the first coupling member engages the second coupling member by the first ratchet tooth surface of the first ratchet tooth contacting the first ratchet tooth surface of the second ratchet tooth when the operating member rotates in the first direction.

15. The device according to claim 14 wherein the first ratchet tooth has a cam surface, wherein the second ratchet tooth has a cam surface contacting the cam surface of the first ratchet tooth, and wherein the cam surface of the first ratchet tooth and the cam surface of the second ratchet tooth cause the second position setting member to move axially away from the operating member when the operating member rotates in the second direction.

16. The device according to claim 10 wherein the first position setting member comprises a first position setting tooth, and wherein the second position setting member comprises an annular member having a second position setting tooth for engaging the first position setting tooth.

17. The device according to claim 16 wherein the first coupling member comprises a first ratchet tooth that moves integrally with the operating member, and wherein the second coupling member comprises a second ratchet tooth that moves integrally with the second position setting member.

18. The device according to claim 17 wherein the operating member has a tubular shape, and wherein the first coupling member comprises a plurality of the first ratchet teeth disposed circumferentially around the operating member.

19. The device according to claim 18 wherein the second coupling member comprises a plurality of the second ratchet teeth disposed circumferentially around the second position setting member for engaging the plurality of first ratchet teeth on the operating member.

20. The device according to claim 19 wherein the second position setting member comprises a plurality of the second position setting teeth circumferentially disposed around the annular member.

21. The device according to claim 20 wherein each first ratchet tooth has a first ratchet tooth surface, wherein each second ratchet tooth has a first ratchet tooth surface facing the first ratchet tooth surface of a corresponding first ratchet tooth, wherein each first ratchet tooth surface of each first ratchet tooth is spaced apart from the first ratchet tooth surface of its corresponding second ratchet tooth, and wherein the first coupling member engages the second coupling member by at least one first ratchet tooth surface of a first ratchet tooth contacting the first ratchet tooth surface of its corresponding second ratchet tooth when the operating member rotates in the first direction.

22. The device according to claim 21 wherein each first ratchet tooth has a cam surface, wherein each second ratchet tooth has a cam surface contacting the cam surface of a corresponding first ratchet tooth, and wherein at least one cam surface of a first ratchet tooth and the second cam surface of its corresponding second ratchet tooth causes the second position setting member to move axially away from the operating member when the operating member rotates in the second direction.

23. The device according to claim 22 wherein the first position setting member is coupled to the base member.

24. The device according to claim 23 wherein the base member has a tubular shape, and wherein the first position setting member comprises a first position setting tooth for engaging at least one of the plurality of second position setting teeth on the second position setting member.

25. A bicycle shift control device comprising:  
a first base member having a first coupling member;  
a second base member having a second coupling member;  
an operating member structured to be mounted around a handlebar so as to rotate in first and second directions around the handlebar;  
wherein the first base member and the second base member are structured to move relative to each other in response to rotation of the operating member;  
a transmission control member coupled to the operating member and rotatably mounted relative to the first base member for pulling and releasing a transmission control element;  
a first position setting member;  
second position setting member structured to rotate with the operating member and to move axially, wherein the second position setting member moves between an engagement position in which the second position setting member engages the first position setting member and a disengagement position in which the second position setting member is disengaged from the first position setting member;  
a third coupling member that moves in response to rotation of the operating member;  
a fourth coupling member coupled to the second position setting member for engaging the operating member so that rotation of the operating member causes rotation of the second position setting member; and  
wherein the first coupling member and the second coupling member are structured so that rotation of the operating member rotates the transmission control member and moves the first base member and the second base member relative to each other for a selected distance without moving the second position setting member toward the disengagement position.

26. The device according to claim 25 wherein the first coupling member and the second coupling member are structured so that rotation of the operating member rotates the transmission control member for a selected rotational distance without moving the second position setting member.

27. The device according to claim 25 wherein the first coupling member and the second coupling member are structured so that rotation of the operating member rotates the transmission control member for a selected rotational distance without rotating the second position setting member.

28. The device according to claim 25 wherein the first coupling member and the second coupling member are structured so that rotation of the operating member rotates the transmission control member for a selected rotational distance without axially moving the second position setting member.

29. The device according to claim 25 wherein the first coupling member and the second coupling member are spaced apart from each other so that rotation of the operating member rotates the transmission control member for a selected rotational distance without the first coupling member engaging the second coupling member.

30. The device according to claim 29 wherein the first coupling member engages the second coupling member by contacting the second coupling member.

31. The device according to claim 25 wherein the first coupling member rotates with the operating member.

32. The device according to claim 31 wherein the first coupling member and the second coupling member are spaced apart from each other so that rotation of the operating member rotates the transmission control member for a selected rotational distance without the first coupling member engaging the second coupling member.

33. The device according to claim 32 wherein the second position setting member moves when the first coupling member engages the second coupling member.

34. The device according to claim 32 wherein the first coupling member engages the second coupling member by contacting the second coupling member.

35. The device according to claim 34 wherein the first coupling member is one piece with the first base member, and wherein the second coupling member is one piece with the second base member.

36. The device according to claim 33 wherein the first coupling member comprises one of a projection and a first abutment coupled to the first base member, and wherein the second coupling member comprises the other one of the projection and the first abutment coupled to the second base member.

37. The device according to claim 36 wherein the first coupling member comprises the first projection coupled to the first base member, and wherein the second coupling member comprises the abutment coupled to the second base member.

38. The device according to claim 36 further comprising a second abutment spaced apart from the first abutment, wherein the projection is disposed between the first abutment and the second abutment.

39. The device according to claim 38 wherein the third coupling member comprises a first ratchet tooth that moves integrally with the operating member, and wherein the fourth coupling member comprises a second ratchet tooth that moves integrally with the second position setting member.

40. The device according to claim 39 wherein the first ratchet tooth has a first ratchet tooth surface, wherein the second ratchet tooth has a first ratchet tooth surface facing the first ratchet tooth surface of the first ratchet tooth, and wherein the first ratchet tooth surface of the first ratchet tooth contacts the first ratchet tooth surface of the second ratchet tooth when the operating member rotates in the first direction.

41. The device according to claim 40 wherein the first ratchet tooth has a cam surface, wherein the second ratchet tooth has a cam surface contacting the cam surface of the first ratchet tooth, and wherein the cam surface of the first ratchet tooth and the cam surface of the second ratchet tooth cause the second position setting member to move axially away from the operating member when the operating member rotates in the second direction.

42. The device according to claim 38 wherein the first position setting member comprises a first position setting tooth, and wherein the second position setting member comprises an annular member having a second position setting tooth for engaging the first position setting tooth.

43. The device according to claim 42 wherein the third coupling member comprises a first ratchet tooth that moves integrally with the operating member, and wherein the fourth coupling member comprises a second ratchet tooth that moves integrally with the second position setting member.

44. The device according to claim 43 wherein the operating member has a tubular shape, and wherein the third coupling member comprises a plurality of the first ratchet teeth disposed circumferentially around the operating member.

45. The device according to claim 44 wherein the fourth coupling member comprises a plurality of the second ratchet teeth disposed circumferentially around the annular member for engaging the plurality of first ratchet teeth on the operating member.

46. The device according to claim 45 wherein the second position setting member comprises a plurality of the second position setting teeth circumferentially disposed around the annular member.

47. The device according to claim 46 wherein each first ratchet tooth has a first ratchet tooth surface, wherein each second ratchet tooth has a first ratchet tooth surface facing the first ratchet tooth surface of a corresponding first ratchet tooth, and wherein at least one first ratchet tooth surface of a first ratchet tooth contacts the first ratchet tooth surface of its corresponding second ratchet tooth when the operating member rotates in the first direction.

48. The device according to claim 47 wherein each first ratchet tooth has a cam surface, wherein each second ratchet tooth has a cam surface contacting the cam surface of a corresponding first ratchet tooth, and wherein at least one cam surface of a first ratchet tooth and the cam surface of its corresponding second ratchet tooth cause the second position setting member to move axially away from the operating member when the operating member rotates in the second direction.

49. The device according to claim 48 wherein the first position setting member is coupled to the first base member.



50. The device according to claim 49 wherein the first base member has a tubular shape, and wherein the first position setting member comprises a first position setting tooth for engaging at least one of the plurality of second position setting teeth on the second position setting member.

51. A bicycle shift control device comprising:

a base member;

an operating member structured to be mounted around a handlebar so as to rotate in first and second directions around the handlebar;

a transmission control member coupled to the operating member and rotatably mounted relative to the base member for pulling and releasing a transmission control element;

a first position setting member;

a second position setting member structured to rotate with the operating member and to move axially, wherein the second position setting member moves between an engagement position in which the second position setting member engages the first position setting member and a disengagement position in which the second position setting member is disengaged from the first position setting member; and

means for allowing the operating member to rotate the transmission control member for a selected rotational distance without the second position setting member moving toward the disengagement position.